

# PATENT SPECIFICATION

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## (54) TOOTHBRUSH

(71) We, GÉRARD JOSEPH RICHÖZ, of Place de la Gare 12c, 1020 Renens, Switzerland a Swiss citizen and JACQUES CHARLES COLLET, of Quai de Copet 12, 1800 Vevey, Switzerland, a Swiss citizen do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to toothbrushes.

Improvements proposed in conventional toothbrushes have generally tended towards complexity in manufacture and sophistication of the brush; this had led to prolongation of the use of the brush. Two major drawbacks have resulted: bulk and lack of hygiene.

It is known that brushing of the teeth after each consumption of carbohydrates provides an effective dental hygiene; however, conventional toothbrushes are not convenient to use away from home and hence dental hygiene is often neglected.

Moreover, conventional toothbrushes form an ideal medium for bacterial culture and are a source of infection for the mouth and gums.

An aim of the invention is to remove these inconveniences by providing a toothbrush which is ready for use anywhere and can be discarded after use.

According to the present invention there is provided a disposable toothbrush assembly comprising a toothbrush having an elongate handle, a plurality of toothbrush bristles located at one end of the handle and extending axially of the handle, a quantity of dentifrice, and a tubular cover enclosing the toothbrush bristles, the dentifrice and at least a part of the handle so as to provide a substantially uniform outer cross-section along the entire length thereof, the cover having a weakened zone which can be ruptured to free the toothbrush bristles and the dentifrice ready for use.

Preferably, the assembly of the present invention has a plug obturating the end of the cover opposite the toothbrush handle to co-operate with an adjacent part of the cover in defining a housing in which the dentifrice is disposed adjacent the toothbrush bristles before the bristles are freed for use.

In a preferred embodiment of the present invention, the dentifrice is disposed in a direct contact with the toothbrush bristles before the bristles are freed for use, the rupture zone being disposed adjacent an area where the bristles extend from the handle.

In a further preferred embodiment of the present invention, a toothbrush handle comprises a bundle of fibres agglomerated along a part of their length and free adjacent one end thereof to provide the bristles. In such case, the fibres are so agglomerated along said part of their length as to enable bending of the handle for use.

The cover preferably comprises a cylindrical tube of sheet material.

The toothbrush assembly of the present invention may additionally include a perforable membrane separating the dentifrice from the bristles before the bristles are freed for use.

An embodiment of the invention is shown, by way of example, in the accompanying drawing, in which:

Figure 1 is a longitudinal cross-section of a toothbrush assembly according to the invention; and

Figure 2 is a similar view of the ruptured assembly ready for use.

The toothbrush assembly shown includes a toothbrush having a rigid or semi-rigid cylindrical handle 1 formed of a bundle of fibres agglomerated, for example, by an adhesive or by radiation or microwave heating, or by dielectric loss, and a head 2 of flexible bristles formed of an untreated end part of the bundle of fibres. A dose of tooth paste 3 is placed directly in contact

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with the brush head 2. The handle 1, head 2 and toothpaste 3 are enclosed in a heat-sealed or stuck tubular cylindrical casing 5 of sheet material which has a ring of perforations at 7. As illustrated, the cover also has an outer cylindrical casing 6 which also has a ring of perforations at 7, cooperating with the perforations of casing 5 to define a rupture zone adjacent the area where the fibre bundle of handle 1 is continued by the bristle head 2. The end of the assembly opposite handle 1 is closed by a plug 4.

For use, the user separates the toothbrush head from the toothpaste, for example by squeezing the head 2 and exerting a torsion to rupture the casings 5 and 6 at 7, followed by a traction. This frees the head 2, as shown in Figure 2, and the toothpaste 3 which can then be emptied onto the head 2. After use, the entire unit can be discarded.

The fibres forming the toothbrush may be composed of extruded, or spun natural or synthetic materials. The casings 5 and 6 can be laminated sheets of natural or synthetic materials suitable to aseptically protect the toothbrush head and toothpaste.

Certain portions of the fibres forming the handle 1 may be only slightly agglomerated, or some parts can be left unagglomerated, to provide a flexibility enabling the user to bend the handle at will.

As a variation, the toothpaste 3 could be separated from the head 2 by a perforable membrane. Also, the handle 1 could be formed in a homogeneous material such as wood, cardboard, or plastics material, and could be hollow; in these embodiments, the bristles would generally be attached to the handle by an adhesive.

Several different types of toothbrush assembly can be provided, with different quantities and types of dentifrices to suit various tastes and requirements.

The described toothbrush assembly can be mass produced at high speed and low cost using machines similar to those used for the manufacture of cigarettes, cigarette filter tips, and capillary rods such as are used in pens.

As the described brush is designed for a

single use, and has a substantially impermeable aseptic covering, it fulfills the requirements for perfect buccal hygiene.

It would alternatively be possible to provide a double-headed toothbrush assembly with two doses of dentifrice and two rupture zones, suitable for two tooth-brushing operations.

#### WHAT WE CLAIM IS:—

1. A disposable toothbrush assembly comprising a toothbrush having an elongate handle, a plurality of toothbrush bristles located at one end of the handle and extending axially of the handle, a quantity of dentifrice, and a tubular cover enclosing the toothbrush bristles, the dentifrice and at least a part of the handle so as to provide a substantially uniform outer cross-section along the entire length thereof, the cover having a weakened zone which can be ruptured to free the toothbrush bristles and the dentifrice ready for use.

2. A toothbrush assembly as claimed in Claim 1, having a plug obturating the end of the cover opposite the toothbrush handle to co-operate with an adjacent part of the cover in defining a housing in which the dentifrice is disposed adjacent the toothbrush bristles before the bristles are freed for use.

3. A toothbrush assembly as claimed in Claim 1 or 2, in which the dentifrice is disposed in direct contact with the toothbrush bristles before the bristles are freed for use, the rupture zone being disposed adjacent an area where the bristles extend from the handle.

4. A toothbrush assembly according to any preceding claim, in which the toothbrush handle comprises a bundle of fibres agglomerated along a part of their length and free adjacent one end thereof to provide the bristles.

5. A toothbrush assembly as claimed in Claim 4 in which the fibres are so agglomerated along said part of their length as to enable bending of the handle for use.

6. A toothbrush assembly as claimed in any preceding claim in which the cover comprises a cylindrical tube of sheet material.

7. A toothbrush assembly as claimed in Claim 1, 2 or 4, 5 or 6 except when dependent on Claim 3, additionally including a perforable membrane separating the dentifrice from the bristles before the bristles are freed for use.
- 5 8. A disposable toothbrush assembly, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawing.
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FIG.1

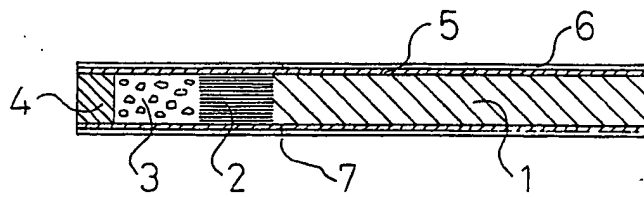


FIG.2

